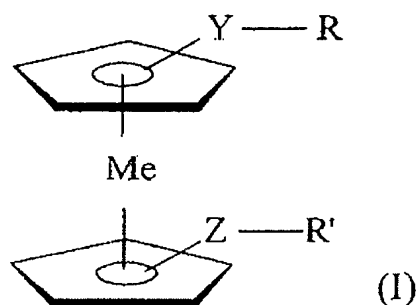


Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A bifunctionalized metallocene of general formula (I):



wherein: ~~in which~~

Me represents a transition metal, ~~preferably chosen from Fe, Ru and Os,~~

Y and Z, which are identical, are chosen from $-(CH_2)_n-O-$, $-(CH_2)-O-[(CH_2)_2-O]_p-$ and $-(CH_2)_q-CONH-(CH_2)_r-O-$, or else

Y is $-(CH_2)_s-NH-$ and Z is $-(CH_2)_t-COO-$,

n is an integer between 3 and 6,

p is an integer between 1 and 4,

q is an integer between 0 and 2,

r is an integer between 0 and 2,

s is an integer between 2 and 5,

t is an integer between 3 and 6,

R and R' represent hydrogen atoms or are protective groups used in the synthesis of oligonucleotides and peptides, ~~it being understood that~~ wherein at least one of R or R' is a protective group used in the synthesis of oligonucleotides and peptides and that R and R' are as defined below:

(i) when Z and Y are chosen from $-(CH_2)_n-O-$, $-(CH_2)-O-[(CH_2)_2-O]_p-$ and $-(CH_2)_q-CONH-(CH_2)_r-O-$, then R and R' are protective groups used in the synthesis of oligonucleotides, and R is a group capable of leaving a free hydroxyl group after ~~deprotection~~, preferably a photolabile group, monomethoxytrityl, dimethoxytrityl, ~~tert~~-butyldimethylsilyl, acetyl or trifluoroacetyl, deprotection and R' is a phosphorus group capable of reacting with a free hydroxyl group, preferably a phosphodiester, phosphoramidite or H-phosphonate group, and

(ii) when Y is $-(CH_2)_s-NH-$ and Z is $-(CH_2)_t-COO-$, then R is a protective group used in the synthesis of peptides and represents a protective group for amines, preferably 9-fluorenyloxycarbonyl, ~~tert~~-butoxycarbonyl or benzyloxycarbonyl, and R' represents a hydrogen atom.

2. (Currently Amended) The metallocene as claimed in claim 1, ~~characterized in that~~ wherein Me is iron.

3. (Currently Amended) The metallocene as claimed in claim 1, ~~characterized in that~~ wherein Y and Z are chosen from $-(CH_2)_n-O-$, $-(CH_2)-O-[(CH_2)_2-O]_p-$ and $-(CH_2)_q-CONH-(CH_2)_r-O-$.

4. (Currently Amended) The metallocene as claimed in claim 1, ~~characterized in that~~ wherein Y and Z are each $-(CH_2)_n-O-$, n being equal to 3.

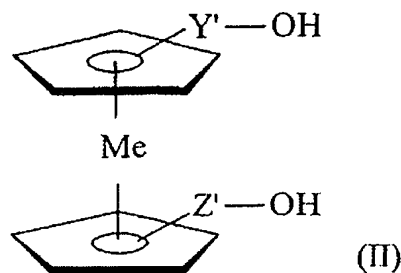
5. (Currently Amended) The metallocene as claimed in claim 1, ~~characterized in that~~ wherein Y and Z are each $-(CH_2)-O-[(CH_2)_2-O]_p-$, p being equal to 2.

6. (Currently Amended) The metallocene as claimed in claim 1, ~~characterized in that~~ wherein Y is $-(CH_2)_s-NH-$, Z is $-(CH_2)_t-COO-$.

7. (Currently Amended) The metallocene as claimed in claim 6, ~~characterized in that~~ wherein s is equal to 3 and t is equal to 4.

8. (Currently Amended) A process for the preparation of a metallocene of formula (I) as claimed in claim 3, ~~characterized in that~~ wherein it comprises the following stages:

a stage of protection of one of the hydroxyl groups of a compound of general formula (II):



wherein: ~~in which~~

Me represents a transition metal, ~~preferably chosen from Fe, Ru and Os,~~

Y' and Z', which are identical, are chosen from $-(CH_2)_n-$, $-(CH_2)-O-[(CH_2)_2-O]_{p'}-(CH_2)_2-$ and $-(CH_2)_q-CONH-(CH_2)_r-$,

n is an integer between 3 and 6,

q is an integer between 0 and 2,

r is an integer between 0 and 2, and

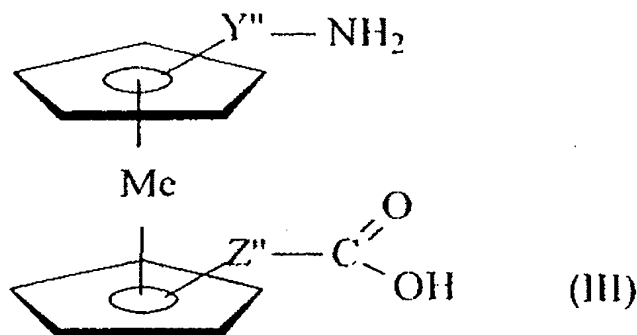
p' is an integer between 0 and 3,

by attachment of a group capable of leaving a free hydroxyl group after deprotection, ~~preferably chosen from a photolabile group, monomethoxytrityl, dimethoxytrityl, tert-butyl, dimethylsilyl, acetyl and trifluoroacetyl, and~~

a stage of coupling, to the other hydroxyl group left free, a phosphorus group capable of reacting with a free hydroxyl group, ~~preferably chosen from the phosphodiester, phosphoramidite and H-phosphonate groups.~~

9. (Currently Amended) A process for the preparation of a metallocene of formula (I) as claimed in claim 6, ~~characterized in that~~ wherein it comprises the following stages:

a stage of protection of the NH_2 group of a compound of general formula (III):



wherein: in which

Me represents a transition metal, ~~preferably chosen from Fe, Ru and Os,~~

Y'' is $-(\text{CH}_2)_s-$ and Z'' is $-(\text{CH}_2)_t-$,

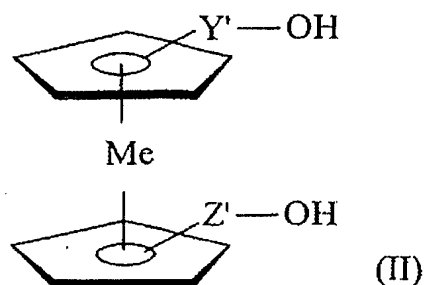
s is an integer between 2 and 5,

t is an integer between 3 and 6,

by attachment of a group capable of leaving a free amine functional group after deprotection;

~~preferably chosen from 9-fluorenyloxycarbonyl, tert-butoxycarbonyl and benzyloxycarbonyl.~~

10. (Currently Amended) A bis(hydroxy)metallocene of general formula (II):



wherein: in which

Me is a transition metal, ~~preferably chosen from Fe, Ru and Os,~~

Y' and Z', ~~which are identical,~~ are each $-(CH_2)-O-[(CH_2)_2-O]_{p'}-(CH_2)_2-$, p'
being equal to 0.

~~chosen from $(CH_2)_n$, $(CH_2)-O-[(CH_2)_2-O]_{p'}-(CH_2)_2$ and $(CH_2)_q-CONH-(CH_2)_r$,~~

~~_____ n is an integer between 3 and 6,~~

~~_____ p' is an integer between 0 and 3,~~

~~_____ q is an integer between 0 and 2, and~~

~~_____ r is an integer between 0 and 2,~~

~~it being understood that, when Me is Fe or Ru and when Y' and Z' are $(CH_2)_n$, then
n is 5 and, when Me is Fe and when Y' and Z' are $(CH_2)-O-[(CH_2)_2-O]_{p'}-(CH_2)_2$, then p' is
0.~~

11. (Currently Amended) The bis(hydroxy)metallocene as claimed in claim 10,
~~characterized in that~~ wherein Me is iron.

12-13. (Canceled)

14. (Currently Amended) A process for labeling an oligonucleotide with a
bifunctionalized metallocene of formula (I) as claimed in claim 3, ~~characterized in that~~
wherein it comprises the substitution of one or more nucleotide synthons by one or more of
said metallocenes of formula (I), in which R and R' are protective groups used in the
synthesis of oligonucleotides, in the cycle for the synthesis of said oligonucleotide.

15. (Currently Amended) The process as claimed in claim 14, ~~characterized in~~
~~that~~ wherein the substitution is carried out in the 3' - or 5' - positions in replacement of the first
or last nucleotides, respectively.

16. (Currently Amended) A process for labeling a peptide by a bifunctionalized
metallocene of formula (I) as claimed in claim 6, ~~characterized in that~~ wherein it comprises
the substitution of one or more amino acid synthons by one or more of said metallocenes of

formula (I), in which R represents a protective group for amines and R' represents a hydrogen atom, in the cycle for the synthesis of said peptide.

17. (Currently Amended) The process as claimed in claim 16, ~~characterized in that~~ wherein the substitution is carried out at the C-terminal or N-terminal ends in replacement of the first or last amino acids, respectively.

18. (Currently Amended) The process as claimed in claim 14, ~~characterized in that~~ wherein at least two consecutive substitutions are carried out.

19. (Currently Amended) A labeled oligonucleotide, ~~characterized in that~~ wherein it is capable of being obtained by the labeling process as claimed in claim 14.

20. (Currently Amended) A labeled oligonucleotide, ~~characterized in that~~ wherein at least one of the nucleosides constituting it is substituted by a bis(hydroxy)metallocene of general formula (II) as claimed in claim 10.

21. (Currently Amended) The labeled oligonucleotide as claimed in claim 19, ~~characterized in that~~ wherein it comprises at least one of bis(hydroxy)metallocene of general formula (I) in the 3'- or 5'-position.

22. (Currently Amended) A labeled peptide, ~~characterized in that~~ wherein it is capable of being obtained by the process as claimed in claim 16.

23. (Currently Amended) A labeled peptide, ~~characterized in that~~ wherein at least one of the amino-acids constituting it is substituted by a bifunctionalized metallocene of formula (III) as defined in claim 9.

24. (Currently Amended) The peptide as claimed in claim 22, ~~characterized in that~~ wherein it comprises at least one bifunctionalized metallocene of formula (III) at the C-terminal or N-terminal ends.

25. (Currently Amended) A support for the synthesis of oligonucleotides, ~~characterized in that~~ wherein at least one metallocene of formula (I) as claimed in claim 1, is grafted to said support by covalent reaction of one of its functionalized ends.

26. (New) The bifunctionalized metallocene of general formula (I) as claimed in claim 1, wherein Me is selected from the group consisting of Fe, Ru, and Os.

27. (New) The bifunctionalized metallocene of general formula (I) as claimed in claim 1, wherein when Z and Y are chosen from $-(CH_2)_n-O-$, $-(CH_2)-O-[(CH_2)_2-O]_p-$ and $-(CH_2)_q-CONH-(CH_2)_r-O-$, R is selected from the group consisting of a photolabile group, monomethoxytrityl, dimethoxytrityl, *tert*-butyldimethylsilyl, acetyl, and trifluoroacetyl.

28. (New) The bifunctionalized metallocene of general formula (I) as claimed in claim 1, wherein when Z and Y are chosen from $-(CH_2)_n-O-$, $-(CH_2)-O-[(CH_2)_2-O]_p-$ and $-(CH_2)_q-CONH-(CH_2)_r-O-$, R' is selected from the group consisting of phosphodiester, phosphoramidite, and H-phosphonate group.

29. (New) The bifunctionalized metallocene of general formula (I) as claimed in claim 1, wherein when Y is $-(CH_2)_s-NH-$ and Z is $-(CH_2)_t-COO-$, R is selected from the group consisting of 9-fluorenyloxycarbonyl, *tert*-butoxycarbonyl, and benzyloxycarbonyl.